**Day 4: 1 – Aug 2024 – Core Java**

Collection framework --- > Data Structure in Java

It provided set of classes and interfaces which help to store the collection of elements or object of same type or different type. It provide lot of pre defined method which help add, remove, search, sort, iterate very easily.

Collection framework hierarchy

Iterable 🡪 interface (lang package)

Extends

Collection --🡪 interface (util package)

Doesn’t

Set List Queue Map -🡪 interfaces

Set : it is use to store elements or items or objects. It doesn’t allow duplicate. Set can be unorder or order or sorted by default. Set doesn’t provide index concept.

HashSet : Implements Set interface. Unorder

LinkedHashSet This class internally extends HashSet class. order

TreeSet : This class internally implements SortedSet interface. Sorted.

These classes directly or indirectly implements Set interface.

List : it is use to store the value using index. It maintain the order. It allow duplicate.

ArrayList

Normal array Vs ArrayList

1. Normal array help to store same type of values. ArrayList by default allow to store any type of values.
2. Normal array is known as static memory but ArrayList is known as Dynamic memory.
3. Normal array doesn’t provide any pre defined method to add in between or remove any elements.

LinkedList

ListList is a type of data structure which use Node concept to store the value.

Types of LinkedList

Singular linked list

Double linked list

Circular singular linked lit

Circular double linked list

Value Ref value ref --🡪 null

Pref value nref pref value nrex

Vector

Vector is known as legacy class. by default method in Vector class are synchronized.

Stack : Stack is a type of data structure which provide a features as First In Last Out.

Push

Pop

Peek

Search

Size

These are known as list classes.

Queue : Queue is a type of data structure which provide a features as First In First Out.

PriorityQueue

LinkedList queue

Map : it is use to store the information in key-value pairs. Key must be unique and value may be duplicate.

HashMap : unorder

LinkedHashMap : order

TreeMap : asc order as key

Hashtable synchronized

These are map classes internally implements Map interface.

CollectionClass<Type> object = new Collection<Type>();

Type can be Integer, Float, Double, Character, String or any defined class object.